What is claimed is:

1. A communication network including a plurality of nodes and a plurality of link groups connecting these nodes, wherein said nodes include:

a first node having a switch for switching a path having a predetermined bandwidth (hereafter, referred to as a low order path); and

a second node having a switch for switching said low order path, a switch for switching a path having a bandwidth larger than said predetermined bandwidth (hereafter, referred to as a high order path), multiplexing means of multiplexing N (N is an integer of 2 or more) of said low order paths on one of said high order paths, and separating means of separating one of said high order paths into N of said low order paths, and

said low order path is set between any two of said nodes and said high order path is set between any two of said second nodes.

2. The communication network according to claim 1, wherein all said nodes are said second nodes.

3. The communication network according to claim 1, wherein a centralized control unit capable of communication with all said nodes and having a path table recording route information on all said existing low order paths is provided, and said centralized control unit set actively said low order path and said high order path.

4. The communication network according to claim 1, wherein every said node has a node control unit having a path table recording route information on all the low order paths passing that node, and said low order path and said high order path are set actively by said node control unit.

5. The communication network according to claim 1, wherein said low order path is a wavelength path and said high order path is a wavelength group path.

6. The communication network according to claim 1, wherein said low order path is a wavelength path and said high order path is an optical fiber path.

7. The communication network according to claim 1, wherein said low order path is a wavelength group path and said high order path is an optical fiber path.

8. A path setting method in a communication network including:

a node having a switch for switching a path having a predetermined bandwidth (hereafter, referred to as a low order path);

a node having a switch for switching said low order path, a switch for switching a path having a bandwidth larger than said predetermined bandwidth (hereafter, referred to as a high order path), multiplexing means of multiplexing N (N is an integer of 2 or more) of said low order paths on one

of said high order paths, and separating means of separating one of said high order paths into N of said low order paths; and

a plurality of link groups connecting these nodes, wherein:

in the case where N (N is an integer of 2 or more) of said low order paths having a route partly coinciding with a section connecting any two of said high order paths exist, the high order path on which the N of said low order paths are multiplexed is set in said section.

9. A path setting method in a communication network including:

a first node having a switch for switching a path having a predetermined bandwidth (hereafter, referred to as a low order path);

a second node having a switch for switching said low order path, a switch for switching a path having a bandwidth larger than said predetermined bandwidth (hereafter, referred to as a high order path), multiplexing means of multiplexing N (N is an integer of 2 or more) of said low order paths on one of said high order paths, and separating means of separating one of said high order paths into N of said low order paths; and

a plurality of link groups connecting these nodes, wherein:

on a route of a first low order path having any two of said first node or said second node as its starting point node and endpoint node, attention is paid to a section that is a part of said route in predetermined order, and if the second to N-th (N is an integer of 2 or more) low order paths of which route partly coincides with said section exist, the high order path

on which the first to N-th low order paths are multiplexed is set in said section.

10. The path setting method according to claim 9, wherein, if length of the route of said first low order path is L, attention is paid first to a section that is entirety of said route, and then to all the sections of which length is L-1, and thereafter to all the sections of which length is L-2, L-3, ..., 2 in order.

11. The path setting method according to claim 9, wherein, if length of the route of said first low order path is L, attention is paid first to the sections having as one terminal point a starting point node of said first low order path of which length is L, L-1, L-2, ..., 2, and then to the sections having as one terminal point the node on an endpoint node side by 1 hops from said starting point node of which length is L-1, L-2, L-3, ..., 2, and thereafter to the sections having as one terminal point the node on the endpoint node side by I hops from said starting point node of which length is L-I, L-I-1, L-I-2, ..., 2 in order of I = 2, 3, 4 ..., L-2.

12. A node apparatus in a communication network including:

a switch for switching a path having a predetermined bandwidth (hereafter, referred to as a low order path);

a switch for switching a path having a bandwidth larger than said predetermined bandwidth (hereafter, referred to as a high order path);

multiplexing means of multiplexing N (N is an integer of 2 or more) of said low order paths on one of said high order paths;

separating means of separating one of said high order paths into N of said low order paths; and

node controlling means having a path table recording route information on all the low order paths passing that node, and wherein:

said low order path and said high order path are set by said node controlling means.